REMARKS

For the sake of completeness, Applicants include herewith a complete listing of the pending claims.

Claims 1-9, 11-12, 14, and 18-19 were previously cancelled.

Claims 10, 13, 15, 16, and 17 were previously presented and currently pending. However, claim 17 is withdrawn from consideration, as being directed to the non-elected invention. Upon allowance of the elected claims, rejoinder of this claim is again requested (MPEP § 821.04).

Applicants thank Examiner Goff for conducting the kind and courteous interview with Applicants' representative on July 16, 2004. It is believed that prosecution was furthered by discussing the outstanding issues of the May 24, 2004 Office Action, as it would appear that the only remaining unresolved issue is a meaning of the term "essentially unidirectional expansion." Thus, a good portion of the discussion focused on illuminating support in the original Specification for this term. Accordingly, Applicants present herewith a discussion that includes a meaningful interpretation of this term. It is kindly requested that the Examiner reconsider the outstanding rejections in view of the following comments.

The present invention is directed to a process for preparing a sheet for a crosslinked polyolefin film expanded in an *essentially unidirectional expansion* only in its thickness, comprising surface-crosslinking both faces of an unsupported intermediate polyolefin sheet to be expanded so that its degree of surface crosslinking is different from its core, these spaces being perpendicular of expansion, and expanding and crosslinking the so formed sheet only in its thickness.

The rejections of claims 10, 13, 15, and 16 under 35 U.S.C. § 112, first paragraph, in view of the written description requirement, and second paragraph, as being indefinite is traversed.

It is noted that there is adequate support in the Specification for the meaning of the term "essentially unidirectional expansion." Since the two issues are coupled, the grounds for traversal of these rejections are found in the following remarks.

The aspect of the claimed invention that is novel and unobvious over the cited references (see below) pertains to the fact that the crosslinked intermediate olefin product can be essentially expanded in a unidirectional manner such that expansion of a sheet of a surface-crosslinked intermediate product occurs primarily in its thickness, i.e., facial expansion of the spaces sheet may be suppressed.

The Office continues to dismiss the novel and unobvious characteristics of the invention; in essence, because it believes that there is no clear indication what "essentially unidirectional expansion" means.

For instance, the Office requested in the May 24, 2004 Office Action for a meaning of "essentially unidirectional expansion." Applicants note that this term can be gleaned from the Specification on page 4, lines 17-25, which is reproduced as follows:

> As already mentioned, the unidirectional expansion is carried out by blocking the expansion in the other two directions. Two main modes of **blocking** form a part of the invention.
>
> According to a first mode, a support is made to adhere, prior to the expansion, to one or both faces of the intermediate product to be expanded, these being perpendicular to the direction of the expansion. The expansion in the directions lying in the plane of these faces is **blocked by the effect of the adhesion to the support which is not extensible**. (Emphasis added here.)

The meaning of "essentially unidirectional expansion," as applied to the disclosed modes of the invention, can be illustrated by carefully inspecting the above bold-faced text. This text shows that essentially unidirectional expansion occurs because facial expansion of the intermediate polyolefin sheet "is blocked by the effect of the adhesion to the support which is not extensible." Accordingly, if the support is not extensible, then the extent (or degree) of blocking is defined by the physical dimensions of the support. Consequently,

essentially unidirectional expansion is expansion that occurs almost exclusively in a direction that is normal to the face of an intermediate polyolefin sheet. Given that this term is used to describe the type of expansion for both modes of the disclosed invention, the meaning of "essentially unidirectional expansion" should now be clear in the context of expansion of a facially cross-linked intermediate sheet occurs perpendicular to the faces of the sheet.

Applicants have highlighted that portion of the Specification that provides both adequate written support for the presence and meaning of the term "essentially unidirectional expansion."

Accordingly, the rejections of Claims 10, 13, 15, and 16 under 35 U.S.C. § 112, first paragraph, in view of the written description requirement, and second paragraph, in view of the meaning of essentially unidirectional expansion should be withdrawn. It is kindly requested that the Examiner acknowledge the same and withdraw these rejections.

Furthermore, the rejection of Claims 10, 13, 15, and 16 under 35 U.S.C. § 112, first paragraph – enablement, is traversed.

Applicants note that now that the term "essentially unidirectional expansion" has been clarified, the basis for removal of the non-enabling rejection can now be illuminated.

The Office has recognized that the various aspects of the claimed invention are adequately described on page 5, lines 15-29. However, the Office has not yet acknowledged that one of ordinary skill would understand exactly how to conduct the invention, especially in view of the meaning of "essentially unidirectional expansion," and it would appear that the issue remaining to be resolved is one of degree. To what extend must one cross-link a surface in order to achieve essentially unidirectional expansion?

One of ordinary skill would be able to ascertain the requisite amount of cross-linking, without undue experimentation, in view of a meaning of essentially unidirectional expansion. in which facial expansion of an intermediate polyolefin sheet is blocked, that one would

necessarily crosslink the surface of the intermediate polyolefin sheet to be expanded to such a degree as to effectively block facial expansion. That is, one would crosslink the surface of the intermediate product to an extent as to afford essentially unidirectional expansion using one or more of the steps outlined on page 5, lines 24-29.

While the Office may contend that this is inadequate direction, it is believed that one of ordinary skill would appreciate that some experimentation would be required in order to ascertain the degree of crosslinking that is necessary in order to accomplish essentially unidirectional expansion. However, it is believed that this experimentation is far from being undue experimentation. A condition that must be present before the Office rejects a pending claim based on 35 U.S.C. § 112, first paragraph – enablement requirement (MPEP § 2164.01).

As it is believed that the disclosure, as originally filed, satisfies the enablement requirement of 35 U.S.C. § 112, first paragraph, it is respectfully requested that the Examiner withdraw this rejection.

Moreover, the rejection of Claims 10 and 15 under 35 U.S.C. § 102(b), as being anticipated by Tsujimoto is traversed.

The Office has stated that "it is unclear how merely surface cross-linking both faces of the polyolefin product results in the foam product expanding only in its thickness," and that "it is unclear how applicant achieves expansion in only one direction performing a method that is substantially the same as that taught by the prior art." The key here is that **the two methods are not the same**. Tsujimoto (JP 1992-213341) effects **partial cross-linking using low-energy** radiation.

Tsujimoto's method does not produce a foam whose expansion occurs essentially unidirectionally, because Tsujimoto's low-energy irradiation only results in partial crosslinking of the material. Since cross-linking occurs only to a partial extent, about 10-

40%, Tsujimoto's product does not undergo essentially unidirectionally expansion, rather, expansion occurs both in the thickness and the width of the film. It is noted that there is 133% increase in the thickness and a 78% increase in the width upon expansion of Tsujimoto's foam, which corresponds to a 30-fold foaming expansion (p. 10; [0031]). This is not essentially unidirectional expansion.

The reason why Tsujimoto's material does not undergo essentially unidirectional expansion can be seen upon inspection of page 5 of Tsujimoto's disclosure. Specifically, the Examiner's attention is directed to paragraph [0011], which states that "the organic peroxide in the surface layer is decomposed and its activity is eliminated" by irradiating the material with a **low-voltage electron beam of 50-400 keV**. This process gives rise to only partial crosslinking of the surface such that "the degree of cross-linking [is] usually 10-40% in terms of gel fraction;" wherein a 30-fold foaming expansion is realized upon expanding the polyolefin product (page 10, [0031]). Thus, Tsujimoto's foam does not undergo essentially unidirectionally foaming.

This should be compared with the method that is claimed herein in which essentially unidirectional expansion occurs by blocking expansion in two of the three possible directions (p. 3, ll. 25-27) by crosslinking both faces of the intermediate polyolefin sheet to such an extent as to afford expansion that is essentially unidirectional (see above).

Thus, it should be apparent that the claimed method results in essentially unidirectional expansion, while that method disclosed by Tsujimoto does not. Therefore, it is kindly requested that the Examiner withdraw this rejection.

Moreover, the rejection of Claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Tsujimoto in view of Hitchcock (U.S. Patent 5,087,395) is traversed.

The combined references do not describe expanding in an essentially unidirectional manner. As noted above, Tsujimoto does not describe a method for expanding a polyolefin

foam in an essentially unidirectional manner. Furthermore, Hitchcock certainly does not describe essentially unidirectional expansion. In fact, Hitchcock's foaming method results in a similar 30-fold expansion (col. 5, ll 55-60); as described Tsujimoto. The two combined references do not disclose or describe a method for expanding foam in an essentially unidirectional manner. Therefore, it is requested that the Examiner withdraw this rejection.

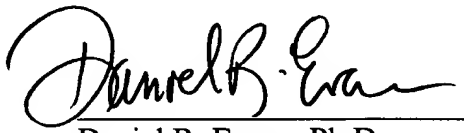
The rejection of Claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Tsujimoto in view of Hurley (U.S. Patent 5,883,145) is traversed.

It is noted that the combined references do not describe a method wherein polyolefin foam is expanded in an essentially unidirectional manner. Like Tsujimoto and Hitchcock, Hurley does not describe a method for essentially unidirectional expansion of a foam. The Examiner's attention is directed to Hurley's Example 1 (col. 14, ll. 25-26 and 46); wherein expansion of a 9" wide by 0.069" thick sheet results in an expanded product whose width is 20" and whose thickness is 0.150". This is not essentially unidirectional expansion in the thickness alone. Thus, it is requested that the Examiner withdraw this rejection.

In view of the above, it is believed that the claims are in a condition for allowance. An early and favorable indication is earnestly requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Daniel R. Evans, Ph.D.
Registration No. 55,868

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220